ADVANCES IN MATHEMATICS 55, 101–102 (1985)

Book Reviews

V. L. TONG, *Probability Inequalities in Multivariate Distributions*, Academic Press, 1980, 238 pp.

V. L. FORTET, *Elements of Probability Theory*, Gordon & Breach, 1977, 524 pp.

S. KARLIN AND H. M. TAYLOR, *A Second Course in Stochastic Processes*, Academic Press, 1981, 542 pp.

A. ARAUJO AND E. GINE, *The Central Limit Theorem for Real and Banach Valued Random Variables*, Wiley, 1980, 233 pp.

M. F. NEUTS, *Matrix–Geometric Solutions in Stochastic Models*, Johns Hopkins Press, 1981, 332 pp.

B. JØRGENSEN, *Statistical Properties of the Generalized Inverse Gaussian Distribution*, Springer, 1982, 188 pp.

W. HAZOD, *Stetige Faltungshalbgruppen von Wahrscheinlictkeitsraumen und erzeugende Distributionen*, Springer, 1977, 157 pp.

M. CARMELI, *Classifying Infinitely Divisible Distributions by Functional Equations*, Mathematisch Centrum, 1978, 194 pp.

C. W. GARDINER, *Handbook of Stochastic Methods*, Springer, 1983, 442 pp.

G. F. VAN DER HOEVEN, *Projections of Lawless Sequences*, Mathematisch Centrum, 1982, 237 pp.

In the world of probability, good exposition is a tradition that is not only keeping the field alive, but making the results of recent research available to scientists in the manifold disciplines that depend on probability for their livelihood. How we wish we could say the same of topology (say)! (When will topologists wake up to the harsh realities of the eighties?)

In the much-awaited second volume of Karlin and Taylor, the student can find a clear and thorough introduction to all current areas of interest. The treatment of stochastic differential equations—a difficult subject to break into, but the center stage of today's probabilistic mathematics—is particularly lucid and thorough, perhaps the best introduction now available.

Gardiner, on the other hand, has taken the bold and unusual step of breaking barriers between different approaches. In his book the quantum and the classical appear side-by-side, and phase–plane analysis is not disdained in explaining stochastic phenomena that after all do resemble dynamical systems. This book will do a lot to bring mathematicians closer to physicists, chemists, and engineers.

Fortet's treatise remains an old standby, sustained by the strong backbone of a conservative approach to probability, to which we all turn when all else fails.

0001-8708/85 $7.50

Araujo and Gine, in an amazing display of technical virtuosity, have convinced us that Banach-space-valued random variables, far from being the abstractions of mathematical desperados, are actually close, indeed indispensable, in the everyday practice of the statistician.

Carmeli has written the first readable account of random matrices, a theory initiated by Wigner which has remained so far largely the physicist's preserve. It is time for mathematicians to pitch in.

Neuts also breaks new ground, with a highly original approach that links the computation of probabilities to the *problematique* of queueing theory.

Tong provides the first comprehensive account of a scattered subject, where the tendency to dwell on the niceties of one dimension has tended to obscure the far more relevant case of multivariate inequalities. Much is to be found here and only here.

Jørgensen introduces us to an unsuspected subject: the inverse Gaussian distribution, another invention of the amazing Jack Good, whose time has finally come.

Hazod surveys the semigroup approach to distributions with a thoroughness and comprehension that will remain definitive for years to come. Van Ham treats a closely related topic, from the elegant but seldom used point of view of functional equations, and van der Hoeven, in a style drawn from the best computer science, approaches a subject to which probability sooner or later will have to take heed.

GIAN-CARLO ROTA
EDITOR

Printed in Belgium